

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE
CALIFORNIA



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Application of Southern California Edison
Company (U338E) for Approval of its
Energy Savings Assistance and California
Alternate Rates for Energy Programs and
Budgets for Program Years 2015-2017

And Related Matters

Application 14-11-007
(Filed November 8, 2014)

Application 14-11-009
Application 14-11-010
Application 14-11-011

**COMMENTS OF HOME ENERGY ANALYTICS CONCERNING THE
ALTERNATE PROPOSED DECISION OF COMMISSIONER SANDOVAL ON LARGE
INVESTOR-OWNED UTILITIES CALIFORNIA ALTERNATE RATES FOR ENERGY
(CARE) AND ENERGY SAVINGS ASSISTANCE (ESA) PROGRAM APPLICATIONS**

September 3, 2016

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Home Energy Analytics welcomes the opportunity to provide comments. HEA provides web-based residential smart meter analysis software to help individuals reduce their energy consumption through cost-effective actions. Our software has been used to analyze over 5,000 residences in California and has helped users reduce their energy consumption (both natural gas and electricity) by an average of 12%, as measured by smart meter data.

HEA has had the opportunity to both review the decision and attend the All Party Meeting of 8/31/16. We will focus our comments on the area where we have extensive experience and can provide unique insight: utilizing AMI data to increase the cost-effectiveness of ESA. In particular, these comments address some of the concerns raised by the IOUs in Section 4.4 around incorporating AMI analysis techniques into ESA.

AMI Data is not being utilized.

ESA programs (and nearly all other IOU energy efficiency programs) have not taken advantage of AMI data. Despite the large monetary investment and promising small-scale pilots the IOUs have not pursued new technologies to extract useful information from electric and natural gas interval data to improve overall program effectiveness. HEA applauds the commission calling for the IOUs to be more innovative in utilizing AMI data analysis because the technology currently exists to:

- Remotely analyze energy use for every residence with a meter so that energy savings measures can be customized based on the unique energy profile of the residence, and

- Track energy savings following an intervention to measure its efficacy.

After establishing a baseline of the prior year's energy use, AMI data enables a detailed analysis of changes in energy use after an intervention.

This technology would enable the network of third party contractors currently delivering energy efficiency measures to be more effective and help address several issues raised in the decision regarding ESA cost-effectiveness.

Ending the go-back rule inherently makes sense when it is also combined with the newly enabled ability to customize energy saving measures for a residence. Since ESA began in 2001 energy use in homes has changed and our ability to measure end uses has also become more accurate. The percentage of plug loads relative to other energy-consuming devices has increased, and as documented in an NRDC report "Home Idle Load: Devices Wasting a Huge Amount of Energy When Not in Use"¹ the energy consumed by devices that are plugged in but not being used consume a surprisingly large amount of energy: based on analysis of 70,000 homes in PG&E territory, the "always on" load represents 22.5% of the average home's electric consumption, costing households an average of \$165 per year. One conclusion that can be drawn from this report is that ESA should add measures to address high idle loads, but there is an even more subtle and important consideration. This analysis was only feasible because of the availability of AMI data. As various organizations continue to mine the data new insights on residential energy consumption can drive improvements in delivering energy efficiency measures, and ESA program design should be flexible

¹ <https://www.nrdc.org/sites/default/files/home-idle-load-IP.pdf>, published May, 2015

enough to incorporate these new findings so as to continually improve cost-effectiveness.

New, promising energy saving technologies must be incorporated more quickly.

HEA is only somewhat familiar with the process for adding a new measure to the approved list but it seems to be primarily constrained by the amount of time and effort it takes to estimate the savings that can be attributed to the new measure. We assume this process was put in place to make sure new measures have a reasonable likelihood of saving energy and to make it possible to forecast savings. These are admirable goals but by making the process of adding new measures so tedious and difficult the testing and adoption of promising new technologies is impeded. It also seems likely that program money is currently being wasted in cases where an approved measure has been installed that does not actually cause any reduction in energy consumption because the measure is not appropriate for the unique energy consumption patterns at that residence. AMI analysis can provide guidance on the most appropriate measures for individual residences and therefore avoiding wasteful installations of ineffective measures. AMI analysis can also be used to measure the cost effectiveness of new measures. Cost effectiveness can be quantified by comparing energy use pre and post intervention. Analysis of AMI data can be utilized to set the baseline of energy use in various categories prior to the intervention and compare it to energy use recorded in those same categories post intervention, and this can be done for each residence so that cost effectiveness can be accurately tracked and analyzed.

Utilizing AMI analysis fits into the existing program delivery infrastructure.

Use of AMI analysis will fit into the existing program delivery model by empowering ESA representatives. As identified by SCE in section 4.4.2, representatives will require additional training but higher energy savings and greater cost effectiveness will offset the minor increased costs. SDG&E is concerned that energy reports may be too “general” to provide any benefit, but energy profiles generated from AMI analysis can differentiate HVAC, “always on” and behavioral energy use, and has shown to be effective in reducing energy use in low income senior housing. The final report of a pilot, completed in 2014 for Silicon Valley Energy Watch, can be found at

<http://corp.hea.com/results/> with the measured energy savings summarized in Table 1.

An energy efficiency program delivery company, Green Pro Network, conducted the pilot as part of the Community Energy Champions program sponsored by Silicon Valley Energy Watch. The program consisted of both control and treatment groups of low-income seniors living in multi-family housing. The control group received only general energy education. The treatment group received advice and custom energy education based on an energy profile generated for their residence through AMI analysis. The energy advisor continued to review the energy profile with the participant over the six-month period. The treatment group saw a 10.2% reduction in electric use and 12.2% reduction in natural gas use. In comparison, residents who received only general energy efficiency education saw a 2.3% reduction in electric use and no change in natural gas use.

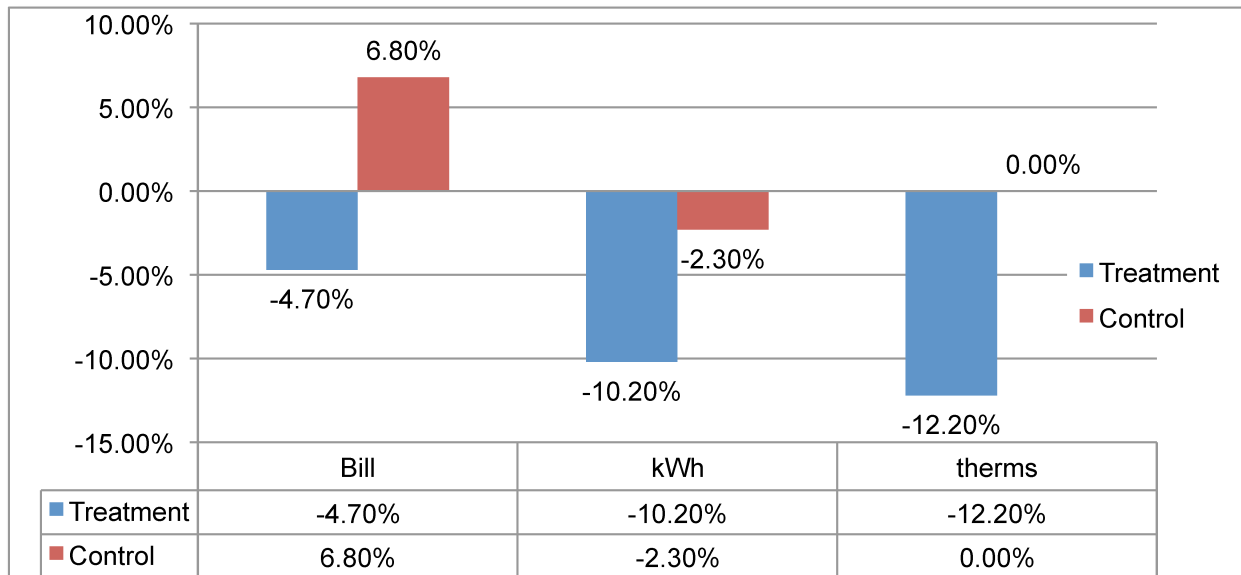


Table 1: Energy Savings Measured for SVEW Pilot

We envision a similar process for ESA programs utilizing the existing ESA representatives. Whereas the Green Pro Network representatives were only able to provide limited energy saving measures such as CFLs, smart strips and wall socket timers, ESA representatives will have a much richer set of energy saving measures to draw on so measured savings should be greater than shown in the pilot. At a very high level, customer engagement would proceed as follows:

- Representatives will use AMI analysis to create an energy profile and identify the most cost effective measure(s) to install prior to visiting the residence
- Representatives will educate residents on ways to reduce energy consumption based on their specific usage patterns.
- Representatives will install or schedule for installation of the appropriate measure(s).

- Program administrators will be able to track energy savings in real time and step in to help residents who are not seeing expected savings.
- Measured energy savings can be rolled up monthly, quarterly and yearly to gauge program cost effectiveness.

AMI Analysis will increase ESA cost-effectiveness.

Current programs require using the same measures regardless of the energy consumption patterns at the residence. This method does not take into account that each residence has a unique energy profile. Presumably, the list of measures has been chosen to provide energy savings for the “average” home at a reasonable price. While the concept of the “average” home is useful in projecting energy savings across a large population, the “average” home does not actually exist: each residence is unique, has a unique energy profile and will benefit from a combination of specific energy saving measures. Without actually analyzing and diagnosing the energy use at each residence we run the risk of installing measures that have no significant benefit, thereby wasting money, and not installing measure(s) that will provide significant benefit, thereby missing an opportunity to achieve energy savings for a lower cost. Prior to the availability of AMI data, using a list of standard measures and savings estimates was understandable. But this methodology should no longer be acceptable. Ratepayer money is being wasted. Measures are being installed that provide little or no benefit in some instances, and inexpensive measures are not being installed that could provide real benefit. There is no way to determine what to install and how well it performs without measuring and analyzing the energy use at the residence. AMI data makes this possible.

A competitive, open market will enable more innovation and energy savings.

HEA may benefit when IOUs are required to utilize AMI data analysis in program delivery but we believe the market as whole will benefit by the promise of increased opportunity for other innovative AMI analysis companies. The IOUs have already made the commitment to provide user energy data through the Green Button Connect standard, and have seen a corresponding increase in innovative 3rd party offerings. What has been lacking for greater uptake of AMI analysis products is a true market. Essentially no IOU money has been spent on incorporating AMI analysis tools into rate-payer funded energy efficiency programs, whereas money continues to be funneled into costly and ineffective existing programs. As the IOUs embrace AMI analysis tools, the variety and sophistication of those tools will increase tremendously due to the financial opportunity. The challenge will be to incent the IOUs to look for and adopt new technologies as they become available. By the same token, the IOUs should not be encouraged to develop AMI analysis tools or mobile apps. Greater innovation will occur if IOUs provide a level playing field enabling many vendors to develop tools that can be used by multiple IOUs, as enabled by Green Button Connect, and compete on the results of those tools. Nimble software development is not a core skill of the IOUs, just as energy production and delivery is not a core skill of software companies.

HEA is excited about the vision outlined in the Alternate Proposed Decision. We believe it takes California closer to capturing the benefits of advanced data analytics and software innovation to achieve the goal of significant energy savings, across a large population, in the most cost-effective way possible.

Respectfully submitted,

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By _____/s/_____
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